

IN THE SPECIFICATION:

Please amend paragraphs [0065] and [0085] in the specification as follows:

[0065] The resin film 6 is placed as a protecting film for the entire corresponding regions of the photodiodes 4, on the incident surface side. Therefore, the resin film 6 is made of a light transmitting resin that is capable of transmitting light detected by the photodiode the photodiode array 4 (light to be detected, e.g., fluorescence generated by scintillator panel 31 as described later) and optically transparent to the light to be detected; for example, such resins as epoxy resin, polyimide resin, acrylate resin, silicone resin, fluororesin, and urethane resin. The resin layer 6 is in direct contact with the flat collet during the flip chip bonding to be exposed to pressure and heat. Therefore, the resin layer 6 is preferably made of a material capable of protecting the corresponding regions of the respective photodiodes 4 from the pressure and heat. In this case, for example, the resin preferably has the coefficient of thermal expansion of approximately 1×10^{-6} - 1×10^{-4} /°C, the elastic modulus of approximately 10-12000 kg/cm², and the thermal conductivity of 0.2-1.85 W/m°C. The resin layer 6 is preferably formed in a thickness in which impurity ions are kept from diffusing into the photodiodes 4 with application of heat and in which at least light from scintillator panel 31 described later can be absorbed thereby (approximately 1-50 μm (preferably, 10μm)).

[0085] The accumulation layer 8 permits the carriers generated near the light-incident surface (back surface) inside the n-type silicon substrate 43 [[3]] to efficiently migrate to the pn junctions, without recombination. This permits the photodiode array 41 to have higher photodetecting sensitivity (though the photodiode array 31 of the present embodiment has the detection sensitivity at a practically acceptable level, without provision of the accumulation layer 8).